

RHODE ISLAND WATERSHED APPROACH FRAMEWORK



DRAFT

June 1999

WATERSHED APPROACH COMMITTEE
WRITING GROUP

Rhode Island Watershed Approach

Rhode Island Watershed Approach Committee

Rob Adler	EPA Rhode Island Program Unit
Dean Albrow	RI Department of Environmental Management Compliance and Inspection
Ken Ayers	RI Department of Environmental Management
Joseph Bachand	US Department of Agriculture Natural Resources Conservation Service
Jeff Brownell	Save the Bay
Russ Chateaufort	RI Department of Environmental Management Water Resources
Tom Dupree	RI Department of Environmental Management Forest Environment
Laura Ernst	RI Coastal Resources Management Council
Ron Gagnon	RI Department of Environmental Management Customer and Technical Assistance
Greg Gerritt	Friends of the Moshassuck, RI Green Party
Alicia Good	RI Department of Environmental Management Water Resources
Terry Gray	RI Department of Environmental Management Waste Management
Roger Greene	RI Department of Environmental Management Director's Office
Mark Hengen	Johnson and Wales University
Janet Keller	RI Department of Environmental Management Strategic Planning
Meg Kerr	University of Rhode Island Coastal Resources Center/RI Sea Grant
Alicia Lehrer	Southern RI Conservation District
Steve Majkut	RI Department of Environmental Management Air Resources
Eugenia Marks	Audubon Society of Rhode Island
Andy McLeod	RI Department of Environmental Management
Laura Miguel	RI Coastal Resources Management Council
Amy Mocarsky	University of Rhode Island Coastal Resources Center/RI Sea Grant
Susan Morrison	RI Statewide Planning Program
Larry Mouradjian	RI Department of Environmental Management Parks and Recreation
Mickie Musselman	RI Department of Environmental Management
Vicky O'Neal	US Department of Agriculture Natural Resources Conservation Service
Richard Ribb	RI Department of Environmental Management Narragansett Bay Estuary Program
Will Riverso	RI Water Resources Board
Donald Robadue	University of Rhode Island Coastal Resources Center/RI Sea Grant
Elizabeth Scott	RI Department of Environmental Management Water Resources
Alan Shoer	RI Department of Environmental Management Legal
John Stogitis	RI Department of Environmental Management Fish and Wildlife
Bob Sutton	RI Department of Environmental Management Planning and Development
Ed Szymanski	RI Department of Environmental Management Associate Director
Fred Vincent	RI Department of Environmental Management Associate Director
Steve Volpe	RI Department of Environmental Management Agriculture
Terry Walsh	RI Department of Environmental Management Permitting

Acknowledgements

Development of the Rhode Island Watershed Approach was a group process, facilitated by the University of Rhode Island Coastal Resources Center. Funding was provided by Rhode Island Sea Grant and the Rhode Island Department of Environmental Management (DEM).

Principal authors are Meg Kerr and Don Robadue of the Coastal Resources Center. Additional contributions were made by URI Community Planning graduate student Patricia Hickey; Jeff Brownell of Save the Bay; Richard Ribb and Elizabeth Scott of the DEM Office of Water Resources; Greg Gerritt of Friends of the Moshassuck; and Eugenia Marks of the Audubon Society of RI. All the members of the Watershed Approach writing group provided valuable review and comments.

Michelle Moulton of the Coastal Resources Center provided layout and administrative support for the development of this document.

Defining the Terms

Within the Watershed Approach Framework, the following words are defined as follows:

Collaborate: "To cooperate with an agency or instrumentality with which one is not immediately connected." ¹ Collaboration requires a commitment to open dialogue and communication, and results in sharing of ideas and information. Decisions can still be made independently, but with a greater awareness of other's interests. Collaboration does not require sharing financial resources.

Cooperate: "To work with another or others. To associate with another or others for mutual, often economic, benefit." ¹ Participants in the Watershed Approach work together on teams, sharing information about issues, concerns, ongoing programs and priorities, among other things. Cooperation results from this sharing of information and ideas.

Ecological system: Living organisms and their environment. Watershed ecosystems encompass water and all its living organisms, and land and its living organisms—including people.

Framework: "A basic structure of ideas." ² The Watershed Approach Framework describes the institutional structures that are proposed as the supporting structure for implementation of collaborative resource management throughout Rhode Island.

Greenway: A protected, linear open-space area. A greenway can be landscaped and developed, or left in its natural condition. It may follow a natural feature of the landscape, such as a river or stream, or it may occur along an unused railway line or some other right of way. ³

Integrated decisionmaking: Decisionmaking that looks beyond the immediate problem and considers connections with broader issues and programs. Integrated decisionmaking results from collaboration because participants understand how their decisions affect others and how other's choices affect their concerns. Integrated decisions are made by individual programs and do not require agreement or consensus.

Partnership: People working together following mutually agreed—upon terms. The Watershed Approach encourages people to work together in partnerships to envision and then create the future they want for their local watershed areas.

¹ A. Merriam-Webster (1972). Webster's Seventh New Collegiate Dictionary. G. & C. Merriam Company, Springfield, MA.

² Ibid.

³ From National Research Council (1992). Restoration of Aquatic Ecosystems. National Academy Press, Washington, DC. Pp. 521.

Partners in Resource Protection: The Partners in Resource Protection was established in 1997 to provide a statewide forum for collaboration on natural resource issues; sharing information about natural resources and related activities; and coordinating programs, projects and plans in natural resource areas. The Partners is comprised of private non-profit organizations, for-profit business, municipal and state agencies, and universities. They jointly identify critical resource issues.

Public/Private Partnership: People and institutions in the public sector (government agencies, universities) working together with people and institutions in the private sector (business, citizens).

Resources: "New or reserve sources of supply or support."⁴ Partners participating in the Watershed Approach are encouraged to share resources, including local and institutional knowledge, technical expertise and staff time. Opportunities for coordinating and targeting financial resources are also identified and used as appropriate.

Rhode Island Rivers Council: The Rhode Island Rivers Council is an agency of state government, created in 1991. The council sits within the RI Department of Administration's Planning Division and its job is to coordinate, oversee and review efforts to improve and preserve the quality of the state's rivers, and to develop plans to increase the utilization of river areas throughout Rhode Island. The Rivers Council is charged with developing a statewide rivers classification and policy plan, and then delegating authority to local watershed councils to implement the plan.

Stakeholders: People who may — directly or indirectly, positively or negatively — affect or be affected by the outcomes of projects or programs. Stakeholders for watershed management are all people working or living in the watershed area. They include businesses, school groups, homeowners, and local and state government agencies, among others.

Stewardship: Willingness of people to be liable for their actions and the resulting state of the surrounding resources.

Tools: "Anything used to accomplish a definite purpose."⁴ Watershed management tools are both regulatory (septic system permitting, wetlands permitting, local zoning) and non-regulatory (best management practices, open space acquisition).

Watershed: The area of land that drains to the outlet of a lake, stream, ocean or other water body. All land is in one watershed or another; large watersheds can be subdivided into smaller watersheds.

⁴ A. Merriam-Webster (1972). Webster's Seventh New Collegiate Dictionary. G. & C. Merriam Company, Springfield, MA.

Watershed Approach: A strategy that promotes the integration of both public and private stakeholder interests in working towards a common goal — to support the sustainable use of natural resources. The approach is based on the understanding that many environmental management issues are best addressed at the watershed level, and that management is greatly enhanced by the involvement and collaboration of a wide range of people living and working in the area.

Watershed ecosystem: A watershed area, the people and other living organisms within the watershed, and the elements that support the life of the organisms.

Watershed management: The collection of authorities, and the decisions made that govern how a watershed ecosystem is used.

Executive Summary

A watershed is the area of land that drains to the outlet of a lake, stream, river, estuary or other body of water. All land is in one watershed or another. The Watershed Approach organizes management and planning around watershed boundaries. It brings people together — local watershed residents, businesses, town officials, and state and federal government representatives — to envision and create the future of their watershed area.

People have a vested interest in water and land within a watershed. The Watershed Approach makes people from all walks part of the decisionmaking process to help determine what is best for their communities. Watersheds cross political boundaries, and the Watershed Approach encourages towns, cities and states to work together to protect their shared resources. The Watershed Approach is greatly enhanced by the involvement and collaboration of a wide range of people living and working in that area.

Although the Watershed Approach is a new and ambitious initiative that promotes a public, business and private sector partnership to manage and restore Rhode Island's environment, it does not replace existing regulatory programs and structures. It enhances existing programs by opening lines of communication and coordination. The Watershed Approach will provide the framework and leadership needed for successful partnerships that enhance our quality of life, while providing for responsible, planned economic development.

The Watershed Approach is based on the following key concepts:

Watershed boundaries, rather than political boundaries, are used to define management areas. Watersheds make ecological sense but create political complexity since they cross political boundaries. Rhode Island's watersheds are small, and will be managed in five regions.

A flexible watershed planning process is used to coordinate work within each of the five watershed regions. The cycle includes five steps:

1. Outreach and scoping
2. Assessment
3. Action plan development
4. Implementation
5. Evaluation

Plans — annual workplans, regional issue assessments and Watershed Action Plans — will serve as fundamental guides for articulating short- and long-term goals, and for managing priority activities. Coordinated planning among watershed partners is a cornerstone of the Watershed Approach.

Phased implementation of the approach statewide provides opportunities for testing the approach, identifying new partners and making improvements.

The following committees provide the institutional structure that will assure continuity in implementation of the approach at the local, regional and statewide level:

An **Executive Watershed Council**, including leaders from state and federal agencies, statewide non-governmental organizations, private industry and other partners will guide the implementation of the Watershed Approach. The Executive Watershed Council provides a vehicle for promoting inter-agency collaboration, as well as cooperation among a wide range of interest and stakeholder groups. They are responsible for setting priorities, and allocating human and financial resources to priority watershed efforts statewide. The Partners in Resource Protection, an existing organization with broad representation from resource management organizations, will provide technical support to the Executive Watershed Council.

Watershed coordinators will be hired for each of the five watershed regions. The coordinator will convene and coordinate the work of Watershed Teams as they work together to apply the Watershed Approach process in the region.

Watershed Teams recruited from community organizations, environmental organizations, and local, state and federal agencies will be formed for each watershed region. Through formation of Watershed Teams, stakeholders have the opportunity to become involved in identifying watershed-specific issues, concerns and solutions, and to participate meaningfully in all phases of the basin management cycle.

Local watershed organizations will be actively recruited to join the Watershed Team. Active groups such as The Executive Watershed Councils recognized by the Rhode Island Rivers Council will be encouraged to take a leadership role in developing strategies for watershed management.

Action Teams drawn from citizen-based monitoring and advocacy groups working on tributary streams will be encouraged and supported by the Watershed Approach.

During 1999, Rhode Island's Watershed Approach will be publicized and tested. Public meetings will be held throughout the state to present the approach and gather feedback. Comments and questions on the approach received at the public meetings will be evaluated and applied to pilot applications. The resulting learning and experience will be used to revise and finalize the Watershed Approach Framework. The year of testing will also be used to develop in-depth guidance for local watershed organizations.

The Executive Watershed Council, Watershed Teams and Action Teams bring together the critical elements of scientific expertise, policymaking authority and local stewardship that are needed to drive the initiative. The Watershed Approach is a collaborative effort that recognizes and respects natural boundaries, and addresses the challenges that face Rhode Island's environment.

Table of Contents

Chapter 1 – Rhode Island’s Watershed Approach	1
1.1 Why Organize an Approach Around Watersheds?.....	1
1.2 What is the Watershed Approach?	2
1.3 Historical Context for the Watershed Approach	3
1.4 Who is Involved?	4
1.5 Mission, Goals and Actions	4
Chapter 2 – Benefits of the Watershed Approach	9
2.1 Benefits of the Watershed Approach for Local Participants	9
2.2 Benefits of the Watershed Approach for State and Federal Agencies.....	11
2.3 The Watershed Approach Strengthens Linkages between Universities and Local Partners	13
Chapter 3 – Organization of the Watershed Approach.....	15
3.1 Introduction	15
3.2 Watersheds and Watershed Regions	17
3.3 Executive Watershed Council	18
3.4 Watershed Teams and Watershed Coordinators.....	19
3.5 Action Teams	20
3.6 Watershed Councils Designated by the Rivers Council	20
3.7 Plans (Watershed Action Plans, annual action plans, rapid regional assessment).....	21
3.8 The Watershed Management Cycle	21
3.9 Implementation of the Planning Cycle	22
3.10 Pilot Testing	22
Chapter 4 – Watershed Planning: Steps 1, 2 and 3 of the Watershed Planning Cycle	23
4.1 Regional Responsibilities.....	23
4.2 Outreach and Scoping, Year 1.....	24
4.3 Assessment, Year 2	25
4.4 Watershed Action Plan Development, Year 3.....	26
Chapter 5 – Implementing and Funding the Watershed Approach (Step 4)	29
5.1 Implementation	29
5.2 Funding the Watershed Approach.....	29
5.3 Objectives for Funding the Watershed Approach	30
5.4 Identified Funding Needs.....	30
5.5 Current Funding Sources.....	31
5.6 Potential/Untapped Funding Sources	31
5.7 Development of a Funding Strategy.....	32
Chapter 6 - Data Collection and Management.....	34
6.1 Introduction	34
6.2 Principles of Data Collection and Management.....	34
6.3 Expanded Information Gathering and Sharing.....	35
6.4 Statewide Data Collection and Management	36
6.5 Designing a Monitoring Plan	36
6.6 Monitoring to Support Program Evaluation	38
Chapter 7 - Evaluating Watershed Management.....	40
7.1 Introduction	40
7.2 The Evaluation Process	40
7.3 Applying the Evaluation Process to the Statewide Watershed Approach	41

7.4	Evaluation for Individual Watersheds.....	44
7.5	Training and Technical Assistance.....	44
Chapter 8 - Communication & Outreach		46
8.1	Introduction.....	46
8.2	Communication Framework.....	46
8.3	Changes in Communication Through the Planning Cycle	47
8.4	Communication Strategies for Watershed Teams	49
8.5	Communication Strategies for the Executive Watershed Council	50
Chapter 9 - Conclusion		52
Appendix 1 – Ten Elements of the Watershed Action Plan		54

Chapter 1 – Rhode Island’s Watershed Approach

Watershed: *The area of land that drains to the outlet of a lake, stream, ocean or other water body. All land is in one watershed or another; large watersheds can be subdivided into smaller watersheds. (For example, the Narragansett Bay watershed can be divided into the watersheds of its major rivers — the Blackstone, Providence, Seekonk, Moshassuck, Woonasquatucket, Pawtuxet and Ten Mile. The watersheds of these rivers can be again subdivided into the watersheds of their tributaries.) The Watershed Approach divides Rhode Island into 25 watersheds.*

1.1 Why Organize an Approach Around Watersheds?

People are accustomed to dividing the land into cities, town and states — areas defined by man-made political boundaries. Watersheds, which are naturally defined by the contour of the land and the flow of water, are less familiar. But there are several reasons why it is useful to organize and coordinate land and resource planning and management within watershed areas.

First, watersheds are natural ecological systems consisting of both water and land that plants, animals and humans depend on for sustaining life. Watersheds can be thought of as big bowls on the earth separated by their rims. Rainfall is distributed to one bowl or the other, depending upon where it lands. Within the bowls are states, counties, cities and towns. Sometimes their political borders are contained in only one bowl; sometimes they cross over into others.

All of the rain that falls into the bowl flows down its sides (the land) to the bottom where there are lakes, ponds and oceans. This is an important concept because as the water from storms flows over the land, it collects pollutants along the way. Salt and sand from roadways; pesticides and fertilizers from lawns and golf courses; oil and antifreeze spilled or dripped from motor vehicles; all are among the pollutants that are partially washed away downstream with the stormwater. In addition to these “nonpoint source” pollutants picked up by the stormwater, there are discharges from “point sources” that impact the watershed, such as pipes at sewage treatment facilities and manufacturing plants.

The land within a watershed has a natural connection to the water within its boundaries. When an activity takes place on the land, the water draining down the land is affected. For example, if a trench is excavated for a new water pipe in the street, the dirt that is washed into the gutter or storm drain eventually ends up in a water body, such as a river. The condition and quality of water at any point in a river is directly related to activities that take place on the surrounding land.

When managing an entire watershed, the cumulative impact of multiple activities must be considered, rather than evaluating each impact separately. Consider the

pipe-trenching activity mentioned above. The level of impact to the local stream may be fairly small if this single, 10-foot long trench is being dug, and some erosion controls are in place. However, the impacts would be greatly magnified if trenches are being excavated along a 10-mile stretch of the river for several projects, and precautions are not taken to control the erosion of the dirt into the storm drains. This erosion could substantially change the characteristics of the river bottom from a muddy environment to a sandy one, and perhaps permanently reduce the ability of certain species of fish to reproduce. As a result of the loss of the fish, fisherman would stop coming to the river, the bait and tackle shops would sell less of their wares, and local restaurants would possibly suffer from less customer traffic or the availability of fresh fish. The neighborhood boat rental company might go out of business. The issue becomes not just a water quality problem, it also effects quality of life and the economy.

A second reason for a watershed-based approach is that watersheds sometimes cross political boundaries. In order to manage watersheds effectively, residents and business people in different municipalities and states need to work together. Within the watershed, one town or state's land use decisions — how land is zoned, where open space is protected, where industrial sites are permitted, how landfills are used and managed — have an impact on water quality in the downstream towns and states. Rhode Island's Watershed Approach encourages the formation of Watershed Teams, with broad representation from town government, planning agencies, businesses, environmental managers and activists, among others, to promote a dialogue and collaborative decisionmaking among the broad range of interests in a watershed area.

Finally, although many people do not understand what watersheds are and may not think about the condition of streams and rivers in their neighborhood every day, people are all connected by these natural systems. Watersheds are where people live, work and play. Watersheds provide drinking water, and places to boat and swim. Watersheds contain homes, businesses, churches and schools — and what is done on land has an impact on the water that flows through it. Organizing management around watersheds provides an opportunity to link people's vested interest in water and land with the management decisions that affect the uses of those resources.

1.2 What is the Watershed Approach?

The Watershed Approach is not a new regulatory program. It operates within the state's existing rules and regulations. The framework presented here is a work in progress. The concepts will be tested during this year and revisions will be made based on the experience. Statewide implementation of the approach will begin in 2000.

The Watershed Approach organizes management and planning around watershed boundaries. It brings people together — local watershed residents, businesses, town officials, and state and federal government representatives — to envision and shape the future of the region for the common good.

The Watershed Approach gives people from all walks of life opportunities to decide what is best for their communities. The Watershed Approach is greatly enhanced by the involvement and collaboration of a wide range of people living and working in an area, who have a shared and vested interest in the water and land within the watershed.

During the last decade, watershed-based projects throughout Rhode Island — on the Blackstone, Woonasquatucket, Runnins and Pawcatuck Rivers, in Greenwich Bay and on Aquidneck Island — have demonstrated the usefulness of collaborative management along watershed lines and the power of stakeholder involvement in the management process. These efforts have shown that successful watershed management involves citizens, businesses, and local, state and federal governments, among many others.

1.3 Historical Context for the Watershed Approach

The concept of resource management within watershed boundaries is not new. It originated in the 1890s, when the US Inland Waterways Commission recommended to Congress that each river system be treated as an integrated system from its headwaters to its mouth. The concept was further developed in the 1950s and 1960s with the Federal Water Pollution Control Act (FWPCA) of 1956 and the Water Quality Act of 1965, which supported river basin compacts and the development of basin plans.

In 1972, the FWPCA was amended to establish as a national goal the restoration and maintenance of the physical, chemical and biological integrity of the nation's waters. This focus gave the FWPCA the popular name of the Clean Water Act (CWA). The act focused primarily on control of pollution discharged from treatment facilities, or point source pollution. Congress, in its regular reauthorization of the CWA in 1987 expanded state programs to deal with toxins, nonpoint sources of pollution (such as stormwater runoff), wetland loss and other concerns. States have had difficulty meeting the goals of the 1987 amendments because nonpoint source pollution and the degradation of wetlands and other aquatic habitats account for most of the nation's remaining water quality problems. These problems must be addressed by state and municipal authorities within individual watersheds.

The need for collaborative approaches has been further demonstrated by efforts to manage drinking water. The 1974 Safe Drinking Water Act (SDWA) drew together several important programs protecting public health. In the late 1970s, hazardous waste sites were affecting public water systems through surface runoff and contaminated ground water discharges. The 1986 and 1998 amendments to the SDWA responded to these concerns and significantly expanded the monitoring and management responsibilities of states and local water suppliers. Source water protection and wellhead protection programs under the SDWA encourage states to develop management plans for important and threatened water supplies and their watersheds. These plans integrate activities affecting drinking water within a watershed. They require coordination and collaboration in their implementation.

Watershed-based management continues to be highlighted in national initiatives. It is the guiding principle of President Clinton's Clean Water Action Plan, released in February 1998. The action plan integrates the protection and restoration of coastal and estuarine waters, surface freshwaters, wetlands, groundwater and natural resources with human health and clean water objectives. A key theme of the plan is a cooperative process for restoring and protecting water quality on a watershed basis. State, federal, tribal and local governments are asked to work with stakeholders and interested citizens to identify watersheds with the most critical water quality problems, and work together to focus resources and implement strategies to solve them. In October 1998, the Rhode Island Department of Environmental Management (DEM) and the United States Department of Agriculture (USDA) Natural Resources Conservation Service published "Unified Watershed Assessment and Restoration Priorities in Rhode Island" in response to the action plan.

Rhode Island's Watershed Approach is intentionally broad in scope. When implemented, it will integrate past and future watershed management initiatives.

1.4 Who is Involved?

In January 1998, the director of the DEM, Andrew McLeod, created a watershed committee composed of senior staff from each of DEM's divisions to work on development of the state's Watershed Approach. A second group, known as the writing group, was also formed, consisting of people working for government agencies and members of community-based, non-profit organizations. The writing group was asked to work with the watershed committee, DEM's Office of Water Resources and staff from the University of Rhode Island Coastal Resources Center to provide broader perspectives to the development of the Watershed Approach and to write a framework document.

Agencies and organizations actively involved in the development of this document include the Audubon Society of RI, RI Coastal Resources Management Council, US Environmental Protection Agency (EPA), the Green Party, USDA/Natural Resources Conservation Service, Save the Bay, the Southern Rhode Island Conservation District, the Coastal Resources Center and the RI Water Resources Board. In addition, various Watershed Approach concepts and strategies have been discussed with representatives from other agencies and organizations at meetings of the Partners in Resource Protection.

1.5 Mission, Goals and Actions

The Watershed Approach will serve as a means for coordinating and integrating the programs, tools and resources of multiple stakeholder groups to better protect, maintain and restore the ecological structure and function of watersheds. It will also support the sustainable uses of watersheds for the future benefit of Rhode Island's citizens.

The following resource management goals will serve as guides for the management of individual watersheds within the state:

- Goal 1:** Preserve and enhance public health.
- Goal 2:** Preserve and enhance watershed ecosystems.
- Goal 3:** Promote an understanding of the connections between multiple projects and activities within watersheds.
- Goal 4:** Promote sustainable economic development.
- Goal 5:** Reduce or prevent pollutant loadings and other activities which stress the environment.
- Goal 6:** Encourage and involve citizens and organizations, promote stewardship, and create public/private partnerships for resource protection, management and restoration.

To achieve these goals, participants in the Watershed Approach are encouraged to take the following actions. New and existing committees and structures designed to support these actions are also described.

1. Practice open and frequent communication and cooperation among governmental programs and other stakeholder groups.
2. Provide new avenues for individual and group participation in watershed management, and promote a stronger resource conservation ethic.

Executive Watershed Council: Implementation of the Watershed Approach is guided by a council which includes leaders from state and federal agencies, statewide non-governmental organizations, private industry and other partners. When fully implemented, the Executive Watershed Council will provide tangible resources (i.e. staff time and funding) to the Watershed Approach. The council is responsible for coordinating efforts, setting priorities, and allocating human and financial resources to watershed efforts statewide.

The Partners in Resource Protection: This existing organization with broad representation from resource management organizations will provide technical support to the Executive Watershed Council.

The formation of Watershed Teams, with membership recruited from community organizations, environmental organizations, and local, state and federal agencies will provide a forum for increased communication and cooperation. A minimum of five teams will be formed to cover the five regions of the state defined for the Watershed Approach.

Local watershed organizations, including The Executive Watershed Councils recognized by the RI Rivers Council, will be encouraged to participate on the teams and take the lead in planning initiatives for their watersheds.

Smaller, locally based Action Teams will be organized and supported. These groups are encouraged to learn about their neighborhood watershed area, identify issues of local concern and work with the Watershed Teams to find solutions.

3. Employ sound, scientific assessments of watersheds, and use measures of watershed health to establish management priorities and guide regulatory decisions.

The Watershed Approach recommends a five-step planning cycle to coordinate work within each of the five watershed regions, and assure that good science is closely linked with management actions. The planning cycle, described in detail in Chapter 3, is composed of the following steps:

1. Outreach and scoping
 2. Assessment
 3. Action plan development
 4. Implementation
 5. Evaluation
4. Implement integrated solutions by coordinating all stakeholder activities within watersheds.

Watersheds: Watershed boundaries form the geographical unit for coordinating management efforts. Rhode Island's watersheds are organized into five regions for implementation of the approach.

Watershed coordinators: A full-time coordinator for each of the five watershed regions will be responsible for local implementation of the Watershed Approach. The coordinator will convene and coordinate the work of Watershed Teams as they work together to apply the approach in the region.

5. Identify common objectives, set joint priorities, share resources, leverage new funding and build public support.

Watershed management plans will help Watershed Teams coordinate activities that are identified through the various stakeholder processes. The plans are intended to be relatively short, reader-friendly documents that are periodically updated. They will provide all interested stakeholders with documentation of priorities, scheduled activities, and agency/organization/business commitments.

6. Encourage local governments to participate in partnerships to address diverse resource management objectives within watersheds.

Phased Implementation: A five-year schedule is proposed to rotate the Watershed Approach management cycle to all areas of the state. Statewide implementation by partner agencies will occur by watershed groupings in phases beginning in the year 2000. Activities to coordinate data, support local planning initiatives and enhance communication have begun and will be ongoing throughout the implementation of the Watershed Approach. Flexibility in implementation of the planning process is

essential — with recognition given to the importance of local government participation, meaningful community involvement and achieving watershed-specific goals and objectives.

Chapter 2 – Benefits of the Watershed Approach

The Watershed Approach is based on the premise that people and organizations who collaborate can be more effective — and can accomplish more — than groups which work alone.

Experience has shown that all participants benefit from working together on projects. The Watershed Approach encourages collaboration around a long-term planning cycle, but participants do not have to wait five years to experience the benefits. This chapter provides highlights of a wide range of collaborative projects and experiences in Rhode Island to help illustrate some of the many benefits of participating in the Watershed Approach.

2.1 Benefits of the Watershed Approach for Local Participants

The Pawcatuck Watershed Partnership, established in 1996, provides some excellent examples of benefits derived from partnership involvement. Benefits to local participants include:

- Building trust
- Improving working relationships
- Pooling and targeting scarce resources
- Expanding opportunities for funding

The following stories provide some detail on how these benefits have been experienced by partnership participants.

Example 1 Partnerships Build Trust and Enhance Working Relationships

Steve Donahue, a sod grower in South County, said that participation in the Partnership's Water Use Stakeholders Group has given him a better, less biased understanding of government agency interests and goals. The Pawcatuck Watershed Partnership has given him the opportunity to form long-standing relationships with agency personnel and to more freely articulate his interests and concerns as a commercial grower. He is confident that agency representatives now have a clearer understanding of his primary interests as a water use stakeholder, and further, that those interests will be reflected in future decisionmaking processes. He stated that it is important for agency representatives to understand that sod growers use expensive irrigation sources hesitantly and only during times of seasonal crisis. His primary concern, as a businessman, is to secure sufficient and reliable access to irrigation supplies during critical times. The Partnership's neutral forum allowed him to better express his interests, as a farmer, in preserving market-driven land values. He is concerned that environmental agencies and organizations downplay the importance of land values in their bid to preserve open space. He hopes that his presence will have an influence on these discussions.

Example 2 Pooled Technical and Financial Resources Can Increase Accomplishments

Nina Rooks, executive director of the Wood-Pawcatuck Watershed Association, often uses *The Pawcatuck Watershed Report* in her interactions with school groups and the general public. *The Pawcatuck Watershed Report*, created and distributed by Partnership members, is a professionally designed, highly detailed introduction to the Pawcatuck watershed, its water resources, its rich ecological diversity, and the many social and environmental issues effecting quality of life in the region. Through the use of photos and colorful GIS maps, the report successfully conveys technically based information in a format well suited for public educational purposes. The production of this document reflects the wide array of technical expertise, knowledge, organizational finesse and financial resources contributed by Partnership members.

Dave Monk, executive director of the Salt Ponds Coalition, is working with other organizations in the Pawcatuck Watershed Partnership to plan a South County Watershed Festival to be held in June 1999. Organizational collaboration has been crucial in helping him to secure the financial and human resources necessary for staging such a large event. The broad range of interests and expertise brought to this collaboration resulted in strong and creative grant proposals. With many partners, the work of planning and organizing the festival will enliven, not exhaust the resources of his small organization.

Example 3 Partnerships Can Target Resources to Meet Local Government Needs

Nancy Hess, town planner for Charlestown, Rhode Island and a Partnership member, was a supporting participant in a municipal training program sponsored by the URI Cooperative Extension and the Wood-Pawcatuck Watershed Association. The training was based on a thorough survey of training needs which was sent to town officials, planners, and volunteer boards and commissions working in the Pawcatuck watershed. Hess appreciated the resulting emphasis on locally identified needs and issues. The training was also successful in fostering closer professional relationships between regional town planners and zoning board members. She noted that the training was of particular benefit to her, in that she would have to expend less time assisting and overseeing the work of new Charlestown board and commission members.

Example 4 Watershed Partnerships Can Increase Funding Opportunities

In the Pawcatuck, Partnership organizations have benefited from greater access to funding through collaborative grant writing and program design. The formation of the Pawcatuck Watershed Partnership has provided member organizations with increased access to federal funding earmarked to promote local stewardship and collaboration in natural resources management. Rob Adler, an EPA official, has been involved in the Pawcatuck Watershed Partnership from its inception. A primary goal of EPA involvement in the Partnership has been to encourage and assist local collaborative initiatives to protect and manage natural resources. Adler's role has been to help link these initiatives with agency funding programs. Involvement in the Partnership has significantly increased agency awareness of local needs and funding priorities.

2.2 Benefits of the Watershed Approach for State and Federal Agencies

Partnership collaborations can benefit participating agencies in a number of important ways:

- Enhanced ability to solve complex problems
- More effective implementation of existing programs
- Increased ability to consolidate and build on past efforts

2.2.1 Enhanced ability to solve complex problems

Today's environmental problems are more interconnected and complex than problems encountered in the past. Industry discharges and common wastewater are no longer our largest environmental threats. Today's most pressing environmental problems stem largely from the cumulative impact of population and economic growth. Consequently, effective management of natural resources is increasingly linked to wise land use planning and management.

The changing face of environmental management is illustrated by efforts to control nonpoint sources of pollution. Nonpoint source pollution can be characterized as dispersed sources of pollution carried to waterways in stormwater runoff. Everyone contributes to nonpoint source pollution when they drive their cars, fertilize lawns and gardens, and dispose of household waste in poorly maintained septic systems. There is widespread recognition that traditional regulatory and technology-based controls are inadequate for managing nonpoint source pollution.

Effective nonpoint source pollution management programs rely on increased communication and coordination across agencies and between the public and private sectors. New efforts to educate and involve the public in natural resources management also play a crucial role in controlling nonpoint source pollution. Watershed Teams established by the Watershed Approach will provide an organized, neutral forums for enhanced information sharing and problem-solving that is well suited to addressing these nonpoint source issues.

Local and state governments are becoming increasingly reliant on coordinated planning to help accommodate a complex array of environmental concerns and initiatives. Rhode Island's Nonpoint Source Management Plan provides a good example of how necessary integrated planning and program coordination has become. The Nonpoint Source Management Plan addresses the protection and restoration of all surface and ground waters of the state that are threatened or impacted by nonpoint sources of pollution. The plan is intended to serve as a coordination mechanism for the many new programs and initiatives designed to manage nonpoint source pollution statewide. The plan also serves to maintain the state's eligibility for federal funding under the Clean Water Act. As an element of the state guide plan, state agencies must ensure that all programs be consistent with the Nonpoint Source Management Plan, as must municipal comprehensive plans and associated land use ordinances.

2.2.2 More effective implementation of existing programs

Committees like the Executive Watershed Council and the Watershed Teams will enhance the implementation of existing programs like the Nonpoint Source Management Plan. These committees will provide open communication channels between agencies and the public, helping to coordinate statewide nonpoint source pollution programs, and link these programs to other resource protection initiatives. The committee will also help keep state and municipal decisionmakers up to date on evolving methods and techniques, allowing them to incorporate new information into their programs

2.2.3 Increased ability to consolidate and build on past efforts

Implementation of the Watershed Approach will enable new initiatives to build on the information, networks and resources of existing environmental programs in the state. A statewide forum such as the Executive Watershed Council will foster better program design through collaborative problem-solving and sharing of data. Heightened communication by the Executive Watershed Council, as well as in and among Watershed Teams, will expand the scope and quality of information available for decisionmaking.

Rhode Island's Source Water Assessment Program (SWAP) provides an excellent example of the type of program that will benefit from the Watershed Approach. The SWAP was established by the 1996 amendments to the federal Safe Drinking Water Act (SDWA). The program is designed to assess threats to the state's sources of drinking water. The goal of the SWAP is to encourage and enable effective protection of drinking water sources. The SWAP entails:

- The delineation of Source Water Protection Areas
- An inventory of all potential sources of contamination within each Source Water Protection Area
- An assessment of the associated risks of each potential contaminant source
- Distribution of the assessment to consumers of public water

The successful development of this comprehensive program will depend on its ability to link with and build upon other water resources protection programs in the state. Early on in the process, the state Department of Health (DOH) Office of Drinking Water Quality assembled a Technical Advisory Committee representing various federal, state and local agencies, municipal boards and committees, and university departments involved in water resources protection. The committee was involved in reviewing and commenting on each component of the SWAP. An initial benefit of the committee for many of the participants was the open exchange of information, experience and expertise. Participants on the committee heard about activities pursued by other organizations that were complementary to their own initiatives. Working together, the committee was able to develop uniform criteria for assessing threats to drinking water supplies, and determine cost-effective assessment methods.

2.3 The Watershed Approach Strengthens Linkages between Universities and Local Partners

The Watershed Approach, through its reliance on broad-based stakeholder involvement, helps to foster the necessary linkages between land use management and environmental management. Universities, in cooperation with local stakeholders, are finding new ways to provide local decisionmakers with the technical tools they need to make informed land use decisions.

The URI Cooperative Extension, in partnership with Cornell University, has received a USDA Fund for Rural America grant to develop and apply a predictive model that will allow communities in southern Rhode Island to envision the effects of different planning strategies on development patterns, and the resulting fiscal, social and environmental consequences. The model will incorporate population and economic growth modeling as well as data on critical resources and habitats from local watershed assessments. Local decisionmakers can then evaluate environmental impacts and pollution control options based on alternative development scenarios. The model is intended to be a new tool for guiding land use planning, based on a synthesis of critical environmental and economic data.

Chapter 3 – Organization of the Watershed Approach

3.1 Introduction

The Watershed Approach is based on the premise that environmental progress results from the energy and interest of people living and working in a watershed area. The approach is a major shift in how to think about environmental management and protection — moving from a government-driven focus to one led by local, grassroots interests.

The Watershed Approach has three tiers of organization. The Executive Watershed Council, with leadership representation from government, business and advocacy organizations, provides statewide coordination. Watershed Teams, with the full-time assistance of watershed coordinators, facilitate activities within watershed regions. And local Action Teams focus energy and interest in individual watersheds or sub-watersheds.

At all levels, the teams encourage sharing of talents, expertise and financial resources. Think, for example, of a Watershed Team which has identified bacterial contamination of a town water supply as a top issue. Technical experts from state and federal agencies (DEM, DOH, EPA) on the Watershed Team can work with Action Teams to design a monitoring program to identify likely sources of contamination. (Business partners participating on the team can help pay for the analysis of samples collected by the teams.) The Executive Watershed Council can link the monitoring with other ongoing projects, perhaps creating a baseline of bacterial levels throughout the watershed region. The town representative serving on the team can serve as a liaison between the team and the water supplier, and the town council and planning board. Through the combined efforts of the many people working on the team, the problem can be dealt with in a more comprehensive fashion.

Since each watershed is unique, the Watershed Approach is designed to be flexible and easily adaptable. Watershed organizations and interest groups are encouraged to use the resources and expertise of Watershed Teams to create local plans and institutions that are uniquely suited to the stakeholders and management issues of their area. Each watershed's application of the Watershed Approach will then be studied, and used to refine and improve the overall framework strategy.

(Insert Map — full page — do not make it the first page of chapter)

3.2 Watersheds and Watershed Regions

All people live, work and play in watersheds, since all land area is in one watershed on another. Watersheds vary in size — large rivers like the Mississippi have huge watersheds. The watersheds of large rivers like the Mississippi can be subdivided into the smaller watersheds that feed into its tributary streams.

Rhode Island is a tiny state with numerous small rivers and coastal areas. The state's Watershed Approach divides the state into 25 small watershed areas.

Local stewardship and coordinated government action form the foundation of the Watershed Approach. These two activities differ in their focus. Most people care deeply about their local community, so focusing management on small watershed areas generally enhances local stewardship. Government coordination, however, works best at a regional level. Rhode Island government agencies have limited staff to assign to resource management programs. The staff work on many watersheds at the same time and can rarely afford to focus all their attention on a single watershed area.

The Watershed Approach promotes the union of local stewardship and government programs. Local leadership in watershed planning is encouraged and supported in each of the 25 watersheds. To simplify statewide coordination, these small watersheds are then gathered into five regions. Watershed Teams, composed of local stewards and government staff, and a full-time coordinator work in each of the five watershed regions to coordinate management efforts.

The following list shows the state's five watershed regions as defined for implementation of the Watershed Approach:

- Northern watersheds: Blackstone, Woonasquatucket, Moshassuck, Providence, Seekonk, Ten Mile
- Quinebaug/Pawtuxet watersheds: Pawtuxet, Quinebaug
- East Bay watersheds: Warren, Mt. Hope, Bristol, Aquidneck Island, Prudence Island, Sakonnet, Stafford/Taunton, Southeast Coastal Ponds
- South County watersheds: Pawcatuck, Saugatucket, Narrow, South County Ponds, Block Island
- West Bay watersheds: Greenwich Bay, Hunt, Annaquatucket, Jamestown

3.3 Executive Watershed Council

The Executive Watershed Council, the statewide oversight body, is composed of representatives from agencies and organizations that contribute resources (staff time and project funds) to the implementation of the Watershed Approach.

Members of the council will be senior executives, or their authorized representative, who are in a position to allocate organizational resources to the approach. The Watershed Approach requires many organizations within Rhode Island to coordinate efforts and resources and work in a collaborative manner. The Executive Watershed Council is ultimately responsible for seeing that the coordination is successful.

The Executive Watershed Council has responsibility for leveraging available resources (human and financial) to priorities established under Watershed Action Plans. Statewide watershed approach priorities will be established by reviewing the Watershed Action Plans prepared and submitted by Watershed Teams.

Technical staff of the agencies represented on the council will provide staff support to the Executive Watershed Council. The Partners in Resource Protection organization may serve in this capacity.

During the initial implementation and testing of the Watershed Approach, the Executive Watershed Council will coordinate the implementation of the Watershed Approach in selected watershed(s). They will evaluate the experience and use this learning to adjust the Watershed Approach. The Executive Watershed Council will be responsible for bringing key agencies and organizations to the table with tangible resources to apply to the Watershed Approach.

The following organizations and officials will be encouraged to join the Executive Watershed Council:

- State resource managers and representatives from key federal resource agencies
- Representatives from RI's municipalities
- Representatives from local Watershed Teams
- The governor's office
- The RI Rivers Council
- Key private sector interests contributing resources to the approach
- Statewide environmental organizations
- Legislative appointees

3.4 Watershed Teams and Watershed Coordinators

Each of the five watershed regions will have a full time, dedicated coordinator responsible for convening Watershed Teams and guiding the Watershed Approach in the watershed. The coordinators will be hired by the Executive Watershed Council.

During the early phases of Watershed Approach activation, the coordinator will meet with stakeholders and will encourage participation on a Watershed Team. These teams can provide stakeholders with the opportunity to participate in the management process.

Watershed coordinators need to be dedicated and highly motivated people with strong organizational and communication skills. They will be responsible for building partnerships among communities, citizens and agencies that will cooperatively develop a comprehensive approach to watershed management. The watershed coordinator will serve as the main point of contact and will be responsible for guiding the development process for the Watershed Action Plans.

The Watershed Teams will be responsible for preparation of Watershed Action Plans. If they have the time and expertise, local watershed groups are encouraged to contribute to the preparation of the plans. These plans will identify priority actions for the watershed region and will include work plans for carrying out these actions. The Executive Watershed Council will review proposed actions and budgets submitted by the state's Watershed Teams and will support implementation of as many actions as possible.

Watershed Teams encourage and solicit stakeholder participation. The team meetings should be well publicized and open to the public, and will work best if facilitated by a neutral party to assure that all ideas are heard and tangible agreements are reached. Watershed Teams should consider using consensus-based decisionmaking.

Table 3.1. Candidate Organizations for Inclusion on the Watershed Team.

Federal Agencies	State Agencies
<ul style="list-style-type: none">• Environmental Protection Agency• Natural Resource Conservation Service• US Fish and Wildlife Service• US Army Corps of Engineers• National Marine Fisheries Service• US Geological Service• Federal Highway Administration• National Parks Service• US Forest Service	<ul style="list-style-type: none">• Department of Environmental Management• Department of Health• Department of Transportation• Coastal Resources Management Council• Economic Development Corporation• Water Resources Board

<u>Municipal Organizations</u>	<u>Other Organizations</u>
<ul style="list-style-type: none"> • Town boards and commissions • Chambers of Commerce 	<ul style="list-style-type: none"> • Environmental organizations working statewide • Land trusts • Conservation Districts • Rhode Island Rivers Council- recognized watershed councils • Watershed associations & partnerships • Universities • Tourism councils • Trade organizations (water supply, realtors, builders, etc.) • Tribes

3.5 Action Teams

Local monitoring and advocacy organizations exist throughout Rhode Island. These organizations are usually small, volunteer-based groups with a passionate concern for local environmental conditions. Watershed Teams should identify these organizations within their region and work to encourage and support them.

A strategy for statewide promotion of local organizations, or Action Teams, is under development.

3.6 Watershed Councils Designated by the Rivers Council

Designated watershed councils are “bodies corporate and politic, having distinct legal existence from the state and any municipality within the watershed area in which the watershed is located” (Section 46-28 of the R.I.G.L.) and are empowered to advocate for and represent the interests of the watershed. Watershed councils have legal standing to present testimony in all state and local administrative proceedings that impact on rivers and water quality. They are expected to advise and make recommendations to the municipality or municipalities where the watershed is located during preparation or revision of comprehensive land use plans, assuring that the plans are consistent with Rivers Council classifications and policies.

Executive Watershed Council representatives should serve on the regional Watershed Team. The regional coordinator and the Executive Watershed Council will also provide watershed councils with technical assistance, building their capacity to lead the development of Watershed Action Plans.

3.7 Plans (Watershed Action Plans, annual action plans, rapid regional assessment)

All groups participating in the Watershed Approach are strongly encouraged to use annual action plans to specifically identify actions needed each year to move watershed management ahead in their geographical area. In addition, Watershed Teams prepare a rapid assessment of the watershed region. This is a review of environmental conditions and issues in the region that enables the team to select topics for inclusion in its annual action plan. Watershed Action Plans arise from this regional assessment, and take an in-depth look at the conditions, issues and required solutions for a specific river or water body and its surrounding watershed.

These various plans provide the means for identifying priority issues and management actions for the watershed area. Watershed plans provide benefits to the diverse stakeholders engaged in the Watershed Approach:

- The rapid regional assessment of environmental conditions (including community interests and concerns) sets a baseline for understanding the unique status of each watershed. This assessment is the first step in the development of a long-term Watershed Action Plan.
- Environmental education and outreach efforts are more effective when linked to the assessment and setting of priorities required by the action planning process.
- Watershed Action Plans provide all interested stakeholders with documentation of priorities, planned actions and commitment to coordination.
- Annual action plans provide stakeholders with opportunities to plan and implement immediate, concrete projects in the watershed.

3.8 The Watershed Management Cycle

1. Outreach and Scoping
2. Assessment
3. Plan Development
4. *Implementation*
5. Evaluation



1. Outreach and Scoping
 2. Assessment
- (Continue second generation of five-step cycle)

The watershed planning cycle provides a focus for Rhode Island's multiple state and federal agencies, non-profit organizations and other interested individuals to schedule activities and coordinate resources. Watershed Teams and watershed coordinators will guide the five-step cycle as it is applied sequentially to each of the watershed regions.

The five-step planning cycle should push the management process forward, allocating only a limited amount of time for assessment and planning, and setting aside time for implementation and evaluation.

3.9 Implementation of the Planning Cycle

A five-year period is proposed to complete the Watershed Approach planning steps in a given watershed. Implementation by watershed regions will occur in phases beginning in the year 2000. By the year 2004, all of the state's watersheds will be using the Watershed Approach.

The table below shows how the approach could be phased in statewide.

	So. County Watersheds	West Bay Watersheds	Northern Watersheds	Quinn/Pawt Watersheds	East Bay Watersheds
Outreach and Scoping	2000	2001	2002	2003	2004
Assessment	2001	2002	2003	2004	2005
Plan Development	2002	2003	2004	2005	2006
Implementation	2003	2004	2005	2006	2007
Evaluation	2004	2005	2006	2007	2008
Outreach and Scoping (Continue 2 nd cycle)	2005	2006	2007	2008	2009

3.10 Pilot Testing

During 1999, the Watershed Approach will be pilot tested. This experience will be used to revise the statewide framework. Input to the approach will also be solicited from partner agencies and organizations.

Chapter 4 – Watershed Planning: Steps 1, 2 and 3 of the Watershed Planning Cycle

This chapter provides detailed guidance to assist Watershed Teams, coordinators and local watershed groups during steps 1, 2 and 3 of the five-step planning cycle. Watershed Teams should apply the guidance as appropriate to the watersheds in their region.

During the first three steps of the Watershed Approach, the watershed coordinator convenes a Watershed Team, conducts focused research in the region and prepares annual action plans and a rapid assessment of the watershed.

Detailed Watershed Action Plans may be prepared in some individual watersheds. Local watershed organizations may choose to lead the development of the plans, or leadership may be provided by watershed coordinators and the Watershed Team.

4.1 Regional Responsibilities

Summary of tasks for the Watershed Team and local groups throughout the planning cycle:

WATERSHED TEAM AND COORDINATOR	<ul style="list-style-type: none">• Communication with Executive Watershed Council• Coordination among agencies working in the watershed region• Communication with local interests through regular meetings of the team• Coordination of regional outreach and education• Preparation of annual action plans
LOCAL WATERSHED GROUPS AND ACTION TEAMS	<ul style="list-style-type: none">• Outreach and communication with local watershed community• Participation on Watershed Team• Local monitoring and advocacy

Although some jobs change with time, many functions of the Watershed Team, the watershed coordinator and the local watershed groups are maintained throughout the planning cycle. These functions include communication and outreach, fundraising and the development of annual action plans.

Annual Action Plans

Watershed Teams and coordinators plan and prioritize their work and describe these plans in annual action plans. These plans focus the attention of all participants on making progress toward achieving identified watershed goals. Annual action plans will identify actions needed to move the team through the planning cycle for the watershed region.

The annual action plan details the year’s projected events and publications, assigns responsibility for each activity and includes estimates of the budget needed to do the work. The plan will also identify implementation actions needed for the watershed process, and other actions that reflect local priorities and interests. These might include support for ongoing projects such as habitat restoration or greenway development.

A typical annual action plan will include the following elements:

- Introduction summarizing regional goals and progress to date
- Objectives and targets for the year
- Description of proposed plan of work
- Specific description of proposed activities for the year and their relation to previous efforts
- Targets to be achieved by the year’s proposed work.
- Description of tasks (During the first year this may include research for the rapid assessment, initial outreach activities, monitoring and early watershed management actions)
- Identification of lead and supporting implementation groups or individuals
- Required budget and funding sources

4.2 Outreach and Scoping, Year 1

Summary of tasks that the Watershed Team and local groups may coordinate and lead during the first year:

WATERSHED TEAM AND COORDINATOR	<ul style="list-style-type: none"> • Organize Watershed Team • Establish a one-year action plan for the region • Identify issues and concerns in the watersheds • Promote communication and coordinate among stakeholders • Initiate public outreach for the region through public meeting, focus groups, etc. • Collect data for rapid assessment of the region • Design and implement a monitoring plan
LOCAL WATERSHED GROUPS AND ACTION TEAMS	<ul style="list-style-type: none"> • Participate on the Watershed Team • Contribute watershed-specific information to the rapid assessment • Identify local interest for monitoring and advocacy

During the early phases of the Watershed Approach, the coordinator focuses on identifying local watershed groups and bringing them together with agency representatives to establish a Watershed Team. Strong lines of communication are established within the team and with the community at large.

The Watershed Team and the coordinator collect data for a rapid assessment of conditions and issues in their region. Once the team has a good understanding of conditions and has worked with local stakeholders to identify issues, the team should identify data gaps and develop a strategy for finding information to fill the gaps. This monitoring and data-gathering plan should reflect information needed for evaluation (Chapter 6), as well as information needed to define problem areas and assess conditions in the watershed area.

4.3 Assessment, Year 2

Summary of tasks for the Watershed Team and local groups during the second year:

- | | |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WATERSHED TEAM AND COORDINATOR | <ul style="list-style-type: none"> • Evaluate existing programs and monitoring activities, and provide input to assessment • Adjust monitoring plan, if needed • Complete the rapid assessment of the watershed region. Work with local watershed groups to establish priorities by identifying regional issues that can be supported by the team. • Identify priority issues and design issue analyses |
| LOCAL WATERSHED GROUPS AND ACTION TEAMS | <ul style="list-style-type: none"> • Contribute information to the rapid assessment of the watershed region • Assist the Watershed Team in reviewing and evaluating available information to set priorities and to select issues for local watershed area • Assist with issue analyses for their watershed area |

Rapid Assessment of the Watershed Region

As early as possible, the Watershed Team and the coordinator will collect existing information on the watershed region and organize a rapid assessment of conditions and issues in their region. The completed assessment should contain information already collected by a variety of agencies and organizations as well as information provided by interested members of the public.

The Watershed Team and coordinator are ultimately responsible for the development of the rapid assessment. The professional environmental managers participating on Watershed Teams should strive to present technical information in a format that can be understood and used by a general audience. They also will provide assistance — technical and financial — to the assessment process. Local watershed organizations should be encouraged to participate in the rapid assessment, taking the lead in developing a detailed characterization of their local watershed. Coordinators should recognize that the characterization is a large undertaking and will likely require assistance from the Watershed Team.

Once completed, the rapid assessment of the region can be presented to watershed interest groups and to potential contributors. It can be used to create a variety of

documents for public distribution — for example, issues brochures or watershed profiles. It also provides a starting point for the preparation of individual Watershed Action Plans during the next planning step.

The following outline shows the key components of a rapid assessment of the watershed region:

- Description of the geographic boundaries of the watersheds and sub-watersheds within the region
- Review of natural resources within the region. This should include information on their condition and uses, and the degree of confidence in available information
- Review of policies and plans affecting resource management. This should include a summary of experiences to date in addressing watershed issues
- Options for action identified by participants during the assessment process
- Major information gaps, and anticipated monitoring and research work in the region to fill these gaps

4.4 Watershed Action Plan Development, Year 3

Summary of tasks for the Watershed Team and local groups during the third year:

WATERSHED TEAM AND COORDINATOR	<ul style="list-style-type: none"> • Prepare Watershed Action Plan(s) for all or some of the watersheds in the region • In watersheds where local organizations are taking the lead on the plan development, support preparation of the plan through technical assistance • Assure connections between individual Watershed Action Plans and suggested performance monitoring parameters
LOCAL WATERSHED GROUPS AND ACTION TEAMS	<ul style="list-style-type: none"> • Assist with preparation of the Watershed Action Plan by identifying local needs and management initiatives or... • Lead Watershed Action Plan development • Continue data collection and local outreach

During the third step, the coordinator, Watershed Teams and local watershed organizations expand the rapid assessment and develop Watershed Action Plans for all or some of the watersheds in the region. Watershed Action Plans serve as fundamental guides for managing the activities within the watershed. The highly participatory process for preparing the plans provides a forum for coordinating the activities of all of the citizens, businesses and agencies that will be involved with resource management efforts.

Watershed Action Plans should be reader-friendly documents that are regularly updated as new information becomes available and additional issues are identified and addressed. Local watershed groups and Watershed Teams will use their annual action plans to

identify what is needed to support development of the long-term Watershed Action Plan. In some years, the team or local group may revise or add new plan chapters.

Each Watershed Action Plan will be unique because it will be the result of collaborative planning at the local level, not just top-down mandates from state or federal government agencies. Comprehensive Watershed Action Plans will contain the following sections:

- Background
- Summary of the process used to prepare the plan
- Roles and responsibilities of participating organizations and individuals
- Watershed characterization (from the rapid assessment)
- Existing management efforts (from the rapid assessment)
- Permitting information
- Goals and objectives for resource management in the watershed
- Findings of fact, management objectives and proposed actions for key issues
- Outreach, communication and public education strategy
- Monitoring and evaluation plan
- Description of implementation and expansion of the Watershed Action Plan

Chapter 5 – Implementing and Funding the Watershed Approach (Step 4)

5.1 Implementation

Under the Watershed Approach, implementation is a continuing process. Each year the Watershed Team prepares an annual action plan to identify actions needed to move the management process forward. During this fourth step, broader management actions, targeted at key issues and identified in the Watershed Action Plan, are implemented. These actions can take many forms such as:

- Implementation of a phased-in open space acquisition plan developed to maintain habitat in upland watershed areas
- Development of a coordinated zoning plan for the watershed area
- Construction of fish ladders and restoration of habitat to support revitalization of the anadromous fishery

Many of these actions will be the responsibility of the agencies and organizations serving on the Watershed Teams. Other actions will require more local initiative. In either case, local watershed organizations will have the most interest in seeing that the plan is implemented and should be encouraged to assume oversight responsibility.

Summary of tasks for the Watershed Team and local groups during the fourth year:

WATERSHED TEAM AND COORDINATOR	<ul style="list-style-type: none">• Provide assistance to watershed groups who undertake local actions• Support regional implementation of actions in watersheds• Implement institutional changes to support/enable priorities identified in watersheds
LOCAL WATERSHED GROUPS AND ACTION TEAMS	<ul style="list-style-type: none">• Local groups oversee the plan for their watershed• Continue data collection, local outreach and advocacy

5.2 Funding the Watershed Approach

The Watershed Approach will need dedicated funding. Funds will be needed to support implementation of individual management actions as well as initiatives supporting the statewide approach. Based on the experiences of existing models for Watershed Approaches, ranging from the National Estuary Program to local citizen-initiated watershed efforts, it is clear that sufficient and stable funding plays a key role in the success of watershed management initiatives.

Some states have had success with legislatively-mandated funding for their statewide efforts (the New Jersey watershed approach receives a percentage of the state's business tax; other states have established watershed programs with funding sources defined in legislation). However, most rely on shifting existing resources and taking advantage of the potpourri of federal, state and non-governmental sources that exist as well as a few new ones (e.g., the federal Clean Water Action Plan). A discussion of these sources is included in this chapter.

The remainder of this chapter is targeted at funding the statewide approach. Guidance to assist Watershed Teams and Action Teams with funding local initiatives will be developed in the near future.

5.3 Objectives for Funding the Watershed Approach

Short Term

- Find sufficient funds and resources to initiate the Watershed Approach and conduct the outreach needed to successfully launch the initiative
- Secure sufficient funding to hire coordinator(s) and support initial assessments and monitoring
- Secure funding for an initial round of watershed projects

Long Term

- Create funding streams that will provide continuous, reliable funding
- Find sufficient funds to sustain watershed coordinator positions and associated administrative costs
- Secure funds to cover additional staff resources needed by partner organizations to implement the Watershed Approach
- Find sufficient long-term funding for watershed-based projects

5.4 Identified Funding Needs

Implementation of the Watershed Approach will incur costs beyond those currently available for this initiative. These costs fall under three categories:

- Institutional/administrative
- Watershed assessment
- Watershed project funding

Institutional/Administrative: These costs include salaries for watershed coordinators, administrative costs associated with that position (office space, computers, mileage, postage, phone and other office expenses), funding for personnel who would be significantly involved in the Watershed Approach (or for new staff to cover their former

workload), and outreach costs associated with initiating and sustaining the approach. Other costs include incorporating GIS into the approach and making data accessible to a variety of audiences. The DEM has indicated that it may be able to provide funding for one watershed coordinator position to pilot the process, and other agencies may be able to contribute to salary needs, but it is apparent that new funding sources will be required to mount an effective statewide approach.

Watershed Assessment and Project Funding: Watershed assessments will incur monitoring costs and may require financial support for volunteer monitoring efforts. Other costs in this category are for personnel, sample analysis, modeling work, mapping and GIS support, equipment and mileage, as well as data management and distribution costs.

Watershed Project Funding: These costs can be modest on an individual basis (mini-grants), but overall can run to significant amounts. The funding to community-based projects is a critical part of capacity-building for watershed management.

5.5 Current Funding Sources

Agencies and organizations that could contribute funding from state, federal and local sources include: DEM, USDA Natural Resources Conservation Service, RI Coastal Resources Management Council, DOH, RI Department of Administration, RI Department of Transportation, US Fish & Wildlife, EPA, universities and municipalities. There are a wide range of grants that support these programs, some of which may be available to the Watershed Approach. Some examples of specific grant sources include Clean Water Act funds that come to the state from the EPA under Sections 106, 104 (b)3 (wetlands and water quality), 212, 319, and 320; Clean Water Initiative funds; EPA sustainable development grants; DEM Aqua Fund monies; pollution abatement grants; and open space bond funds. Universities have internship programs and fellows that can also be used to support the approach.

5.6 Potential/Untapped Funding Sources

Other sources include a variety of state and federal funds that have not been accessed for Watershed Approach funding: special governmental funding mechanisms, public/private partnerships, foundation funding and monies contributed by non-profit advocacy or citizen groups.

Federal Sources: In 1997, the EPA produced a document entitled “Catalog of Federal Funding Sources for Watershed Protection” that lists a wide range of federal grant funding sources that could be accessed to support the Watershed Approach. Other federal agencies have also produced guides to funding sources.

State Sources: The State Revolving Fund (SRF) has traditionally been used only for wastewater treatment. Recent revisions to the Priority Determination List for SRF projects gives more equal weighting to nonpoint source and estuary projects. The fact

that this is a loan rather than a grant program, and therefore requires a dedicated revenue stream, makes it less attractive to those seeking funding. The state currently has significant funds residing in this program and is seeking new ways to encourage municipalities and other entities to access this source.

Legislative Funding: In several states, legislatures have created laws that assign responsibilities and funding to Watershed Approach implementation. In some cases, this was in response to lawsuits over the implementation of Total Maximum Daily Load (TMDL) evaluations.

Special Governmental Funding Mechanisms: Other states have had significant success in creating a funding source through the sale of environmentally-themed license plates. Plates are in existence and have provided hundreds of thousands of dollars to support watershed initiatives in the Long Island Sound, Chesapeake Bay and Indian River Lagoon, FL regions.

Another useful tool is the creation of special utility districts such as wastewater management districts and stormwater utility districts that address watershed problems and provide revenue streams to access other funding mechanisms such as the SRF. These particular tools may be part of a set of long term goals for the Watershed Approach as it may take considerable time to build support for mechanisms of this type.

Public/Private Partnerships: These community-based mechanisms can achieve watershed goals while building the trust needed for all stakeholders to work together effectively. Examples include outreach/educational programs, resource restoration projects and Internet technology community connection projects.

Foundation Funding: Organizations like the National Fish & Wildlife Foundation, a non-profit established by Congress to fund natural resource conservation projects as well as the many private foundation sources may be interested in funding portions of the Watershed Approach.

Special Appropriations: Some states have funded their Watershed Approach with special appropriations. In Rhode Island, a special appropriation was obtained to supplement coastal and fisheries monitoring.

5.7 Development of a Funding Strategy

One of the early tasks for the Executive Watershed Council will be to develop a funding strategy for the statewide Watershed Approach. Participants in the approach should realize that seeking out consistent funding sources, preparing grant proposals, working with legislators, and building collaborative projects and processes are labor-intensive activities and will have to be managed through the watershed process with contributions from many stakeholders.

Chapter 6 - Data Collection and Management

6.1 Introduction

This chapter provides a framework for statewide data collection and management that will support the implementation of the Watershed Approach. It is not intended to be guidance directed at local teams. The EPA, states and other organizations have developed a wide range of monitoring guidance that will assist Watershed Teams and local Action Teams to design and organize specific monitoring activities. These existing documents will be available to Rhode Island groups participating in the Watershed Approach. Additional guidance, if it is needed, will be developed as the Watershed Approach is implemented and tested in the state.

Maximizing the usefulness of existing data is a key tenet of the Watershed Approach. Participants in the approach will explore ways to make their information and data available and useful for all watershed partners.

6.2 Principles of Data Collection and Management

Information is an essential and critical component of the Watershed Approach. Data on ecosystem condition and use, information on the concerns and interests of people living and working in the watershed, and information on rules and regulations affecting watershed management set the context and priorities for Watershed Action Plans. Watershed Teams, individual watershed groups, municipalities and agencies also need data to evaluate the effectiveness and impact of their management efforts. Five principles of data collection are central to the Watershed Approach:

- Review available data before collecting new data

Watershed Teams rely on existing information and the rapid assessment of the watershed region in the development of Watershed Action Plans. There are a wide variety of monitoring and data gathering initiatives underway in the state. Table 5.1 provides an initial summary of available information and how this data can be accessed.

- Data collection should be targeted and strategic

There is never enough information available, and most Watershed Teams will decide to do additional monitoring. Collection of new information should be targeted at specific questions. Monitoring should be planned after existing data has been analyzed, and stakeholder interests and concerns are well understood. Specific questions are developed which are critical to understanding the selected issues and management alternatives. The selection of parameters, the monitoring frequency and

the selected methods will then be targeted to provide answers to these specific questions.

- Strive for consistent monitoring and data management so data can be shared

Data sharing is an ongoing challenge. Agencies participating in the approach will explore ways to make information readily available to all partners in the approach. Partners in the Watershed Approach will work towards developing a statewide, centralized data storage system, perhaps with the Environmental Data Center.

Watershed Teams and Action Teams will strive to share information they collect. Teams are urged to meet with potential data users before monitoring plans are completed, to discuss if data can be shared and what steps need to be followed to assure that the data will be useful to all parties.

- Encourage new approaches for data gathering and sharing

During the first year of the Watershed Approach, teams will quickly identify data gaps and opportunities for additional data gathering. Team members work to coordinate ongoing monitoring activities within the watershed area, perhaps through the development of an integrated monitoring plan. Teams should consider using local watershed councils, Action Teams and other community groups to collect information that will supplement monitoring conducted by agencies and universities.

- Data collection should address program evaluation as well as priority management issues

6.3 Expanded Information Gathering and Sharing

Monitoring information forms the foundation for sound environmental decisions. The Executive Watershed Council, the Partners in Resource Protection and other partners participating in the approach will explore and promote programs and policies that support expanded information gathering in Rhode Island. The DEM monitoring strategy, which is currently under development, should reflect these recommendations. Some of these approaches include:

- Encourage geographical referencing of data

Data collected by any organization participating in the Watershed Approach should be geographically referenced so information can be viewed on a watershed and sub-watershed level. If practical, data should be referenced so it can be incorporated into the state's Geographical Information System (RIGIS). At a minimum, all data should be referenced to watershed names or numbers. This allows information to be reviewed for a watershed area, allowing consideration of cumulative impacts from multiple projects.

- Include data collection as a permit requirement

Environmental assessments needed for permit reviews are typically performed by the applicant. Once permits are issued, monitoring of the long-term impacts of the project can also be done by the permittee with oversight from state personnel or experienced monitoring organizations. Permittee monitoring can provide a wealth of useful information on environmental conditions within watershed areas.

- Promote monitoring by citizen volunteers

Throughout Rhode Island, trained volunteers monitor water quality and participate in watershed restoration projects. Data collected by volunteers is included in DEM's analysis of the condition of the state's waters, which is reported every other year to the EPA. The Watershed Approach will encourage, promote and expand this cost-effective approach to monitoring, assessment and public education.

- Encourage and promote research

The collaborative mechanisms established by the Watershed Approach will strengthen links between research conducted at the state's colleges and universities, and direct management of watershed resources.

6.4 Statewide Data Collection and Management

A variety of organizations and agencies are engaged in environmental monitoring throughout Rhode Island. A table summarizing these activities is found in the appendix. Several new initiatives are underway to enhance the state's monitoring. These include the DEM Office of Water Resources monitoring strategy and DEM's data and permit streamlining process.

6.5 Designing a Monitoring Plan

At the beginning of the Watershed Approach process, the Watershed Team and local watershed organizations prepare the assessment of the region by collecting and summarizing existing information. Based on the assessment, the team identifies priority issues and additional information that needs to be collected. Monitoring designed to fill these information gaps needs to be carefully thought out and planned. The following questions can help plan these new monitoring activities:

- Why is the monitoring taking place?

Is additional baseline information needed on specific parameters? Are changes in condition or quality over time anticipated that need to be documented? Is screening for potential problems needed? Is information to support environmental management

decisions required? Are environmental impacts being documented? Is the primary interest in educating the public or public officials?

- Who will use the monitoring data that is collected?

Will it be used by state agencies — DEM, DOH, DOT? By local government? Universities? Schools? Environmental organizations? Local planning and zoning boards? Soil and water conservation districts?

- How will the data be used?

How will members of the Watershed Team and the local watershed organizations use the collected data? Will they be reviewing water quality in relation to water quality standards? Are they looking at the status of the watershed in light of the Rivers Council classifications? Are they evaluating the effectiveness of previous management initiatives? What are the goals?

- What parameters or conditions should be monitored?

The selection of what to monitor depends on the answers to the previous questions. If the concern is about water quality standards, select parameters that are included in the state standards. If sewage contamination is an issue, monitor coliform bacteria. Concerns about habitat destruction can be addressed by monitoring the physical and biological characteristics of the system.

- How good does the data need to be?

The uses of the data will determine how accurate and reliable the data need to be. Assessing the condition of waters in relationship to water quality standards will require high quality data. Qualitative assessments of habitat will require less accurate and precise information, but there will be a need for specialists to conduct field work and then interpret the data. In most situations, it will cost more to collect better data.

- What methods should be used?

If water samples are to be collected, think about whether to use grab samples or integrated samples. What equipment will be used? Are there steps that need to be taken to prepare the equipment? What protocols will be followed? Have they been well documented?

- Where will the monitoring occur?

Does the new sampling coincide with stations that have been sampled in the past? Is there a desire to bracket areas of concern to identify sources of pollution?

- When will the monitoring occur?

What time of day? What time of year? How frequently should the monitoring occur?

- How will the monitoring data be managed and presented?

Be sure that there is a plan for data sharing.

- How will the team ensure that the data are credible?

Is a specific quality assurance plan and program needed? Has there been coordination with state and federal agencies (DEM, EPA, US Fish and Wildlife, etc.)?

6.6 Monitoring to Support Program Evaluation

All Watershed Teams are accountable for progress towards statewide watershed management goals in their watershed groupings. Teams should also articulate watershed-specific goals, and include monitoring in their plans.

Chapter 7 - Evaluating Watershed Management

Having systems in place to measure and communicate progress is a critical part of watershed work. Appropriate measures not only keep watershed issues on people's radar screens, but, as they are met, allow stakeholders to share successes and to highlight new challenges to the watershed. Progress can be measured in many ways and communicated through meetings, brochures, Internet sites, annual reports and news releases. The important thing is to make sure that the appropriate measures of progress (often referred to as indicators) are selected and that information on these indicators is shared with relevant stakeholders. — [Top 10 Watershed Lessons Learned, U.S. Environmental Protection Agency 1997⁵]

7.1 Introduction

Evaluation is the fifth step of the planning process and an integral part of the Watershed Approach. Collaboration and coordination are difficult, but are made easier and more effective when watershed partners agree to open and honest communication and evaluation. All the players in the Watershed Approach participate in the work of evaluation and accountability.

This chapter outlines steps for conducting evaluation at the statewide level, the regional level and in each individual watershed area. The steps are comprehensive, and participants may choose to implement only portions of the evaluative framework described. No matter what the capacity of the group, it is important that evaluation be considered and included in watershed planning, even in a modest way.

7.2 The Evaluation Process

Evaluation provides watershed managers and other participants in the Watershed Approach with a process for linking project goals and objectives with activities and outcomes. Thinking about evaluation forces participants to articulate assumptions behind their program activities and the linkages that connect activities to each other.

Program evaluation proceeds by following an ordered set of seven steps:

1. Set project goals, objectives and activities
2. Identify assumptions behind program activities
3. Identify progress toward objectives and goals
4. Establish intermediate results or outcomes
5. Prepare a baseline assessment
6. Establish target levels for the selected indicators

⁵ Top 10 Watershed Lessons Learned. U.S. Environmental Protection Agency, Office of Water, Office of Wetlands, Oceans and Watersheds, September 1997. EPA 840-F-97-001. Available on the internet at: www.epa.gov/owow/lessons.

7. Collect, analyze and communicate the information

7.3 Applying the Evaluation Process to the Statewide Watershed Approach

The Executive Watershed Council and Partners in Resource Protection have responsibility for program evaluation at the statewide level. This will track progress toward achieving the goals and objectives of the approach. The evaluation will also measure progress towards implementing the state level guidance and will identify the support needed to assure that all watershed regions successfully produce Watershed Action Plans by the end of the first planning cycle.

The following section describes how the steps of the evaluation process could be applied at the statewide level.

1. Set project goals, objectives and activities.

The Watershed Approach committee has identified goals and objectives for the statewide work, which are listed in Section 1.5.

Activities conducted to date in support of the approach have included:

- An inclusive, stakeholder-based process to develop the Watershed Approach
- Outreach to publicize the approach

Activities planned for the next year include:

- Application of the Watershed Approach to one watershed region to test and finalize the framework
- Expanded public outreach
- Forums to broaden the partnership base for the statewide approach

2. Identify assumptions behind program activities.

Identifying the key assumptions underlying the state watershed management strategy allows the Executive Watershed Council to determine if adjustments are needed to the overall strategy.

Some assumptions behind the approach include:

- Collaboration and coordination in developing and applying management efforts will increase program effectiveness, and result in improved environmental quality
- Local watershed groups will see the benefits of regional coordination through Watershed Teams and will want to participate
- Organizations represented on the Executive Watershed Council will have resources to contribute to the Watershed Approach

3. *Identify indicators of progress toward objectives and goals.*

There are a wide range of indicators in use and under development throughout the US that could be used by the Watershed Approach. During the initial cycle of watershed strategy implementation, indicators in use by management agencies and other organizations will be reviewed to evaluate their usefulness as a measure of progress toward the goals of the Watershed Approach. For example, the EPA has developed watershed health indicators for use in their interactive web site, “Surf your Watershed” (<http://www.epa.gov/surf/>). The site also includes several other indicators of ecosystem condition that are under development.

The objectives developed for the Watershed Approach lend themselves to a range of possible indicators that would measure changes in organizational capacity. Examples include:

- Measures of communication between government and stakeholders. Have mechanisms been developed to enhance information exchange?
- Measures of local government participation on Watershed Teams — do they come to meetings? Is there an exchange of information and priorities between the team and the town?

In addition, indicators will be developed to document progress in the Watershed Approach. This could include:

- Number of watersheds involved at initiation and at subsequent stages of the Watershed Approach planning process
- Number of agencies meeting on a regular basis in support of the Executive Watershed Council
- Leveraging of funding at state level to provide watershed coordinators

4. *Establish intermediate results or outcomes.*

Intermediate targets acknowledge that the objectives of the Watershed Approach are long term, and will be met by taking small incremental steps. Program activities and their stated assumptions acknowledge this — intermediate results and outcomes provide a mechanism for the evaluation to assess these smaller steps.

The following provide examples of possible intermediate targets for measuring the progress of the approach:

- By (provide a specific date), mechanisms are in place for coordinated planning and implementation of resource management actions among several resource management agencies (DEM, DOH, Natural Resources Conservation Service, EPA, etc.), and have been applied to one watershed region
- By (date), RI has implemented coordinated permitting in one or more RI watershed

- By (date), constituency support for the Watershed Approach is evident through increased funding for watershed initiatives
- By (date), watershed coordinators will be in place for all of RI's watersheds

Similar intermediate outcomes could also be established for the environmental progress of the approach. Examples might include:

- By (date), protocols are in place to open and close public bathing beaches in response to bacterial contamination
- By (date), TMDL analyses are completed for (x) % of the state's impaired waters, and identified source controls are in place in (y) % of the waters

5. *Prepare a baseline assessment.*

A baseline assessment includes initial measurements of all selected indicators. Some indicators will be selected that are in use by agencies and organizations and these will have initial values. Other indicators will be developed specifically for the Watershed Approach and will need to be measured during the next year.

The baseline assessment documents current conditions in the state's watersheds as well as the institutional capacity for integrated management. These institutional assessments can take many forms. The following surveys, described in EPA's "Measuring Progress of Estuary Programs"⁶, could be adapted for Rhode Island's Watershed Approach:

- Government Action Checklist

The checklist documents a selection of state watershed actions undertaken by government entities. For example, they include intergovernmental coordination activities, publication of regulations, permits issued and a public information program for the Watershed Approach.

- Stakeholders Surveys

The survey will document watershed actions undertaken by the private sector and non-governmental organizations. For example, obtaining recognition as Rivers Council, watershed councils, securing funding for watershed management actions, providing local leadership in a Watershed Team or pilot project, and/or adopting Watershed Action Plans.

⁶ Measuring Progress of Estuary Programs, A Manual. US Environmental Protection Agency Office of Water, November 1994. EPA 842-B-94-008

6. *Establish target levels for selected indicators.*

The Watershed Approach calls for extensive changes in how resources are managed in Rhode Island. Progress towards full implementation will be slow. Once indicators are selected, the Executive Watershed Council should establish targets that are meaningful for the five-year cycle.

7. *Collect, analyze and communicate the information.*

Reporting and communicating progress is essential for maintaining interest and support in the statewide approach. Opportunities for this include:

- Using an annual conference or workshop as an event to present a watershed group's annual review of progress
- Documenting and publicizing adaptations made during the reporting period
- Creating an overall status and "lessons learned" report to be released at a biennial state conference on watershed management

7.4 Evaluation for Individual Watersheds

A framework and guidance for monitoring progress and intermediate results in individual watersheds is covered in Chapter 3, section 3.12.

7.5 Training and Technical Assistance

Support will be provided to Watershed Teams to encourage the development of standard indicators, data collection methods and reporting formats. This will save time and effort for the teams, as well as enable greater comparability of information as overall progress is assessed.

Chapter 8 - Communication & Outreach

8.1 Introduction

Federal, state and tribal programs can help produce clean water and healthy watersheds only with the commitment of local communities and citizens. Effective communication fosters greater commitment to the goals of the Watershed Approach.

This chapter provides suggestions for enhancing communication among government and non-government partners in Watershed Approach activities and policy setting. It also describes ways that communication strategies should change as partners move through the cycle of creating and implementing community-based watershed plans.

8.2 Communication Framework

The success of the Watershed Approach relies on good communication among the Executive Watershed Council, Watershed Teams, watershed councils and local Action Teams. All these partners should embrace the following key principals of communication:

- Communication strategies will target a range of audiences to promote interagency coordination and community outreach
- The Watershed Approach will not create new outreach vehicles when existing networks exist
- Procedures for coordinating communications will be included in all annual action plans

In general terms, the objectives of communication are:

- To convince decisionmakers and the public of the effectiveness of the Watershed Approach, so that necessary policy and financial commitments can be made
- To encourage informed public participation in developing watershed and Action Teams
- To educate decisionmakers and the public about achieving and maintaining water quality standards within the watershed
- To achieve integrated program planning among agencies for efficient environmental quality improvement

8.3 Changes in Communication Through the Planning Cycle

Collaboration will only occur when all partners feel included and involved in the process. However, poorly planned and executed communication strategies can be time consuming and ineffective. In planning communication strategies, keep in mind what is hoped to be accomplished. Consider the desired outcomes and the actions that need to be fostered as a result of the communication strategy.

The following section quickly identifies some of the actions and outcomes that Watershed Teams will want to solicit from decisionmakers, watershed stakeholders and the general public during the five steps of the planning process.

Outreach

During the first phase of the approach, communication should have two objectives: letting people know about the Watershed Approach, and encouraging them to participate in the process. Communication targeted at three key audiences — decisionmakers, stakeholders and the general public — will focus on achieving desired outcomes for each audience:

- **Decisionmakers:** They will endorse and support the process. They will be committed to receiving information and making decisions.
- **Stakeholders:** They will acknowledge the importance of the opportunity. They will clearly and openly state their interests and concerns. They will communicate regularly with Watershed Team members.
- **General Public:** They will become informed about the approach. They will be involved and want to learn more. They will encourage stakeholders and decisionmakers to produce tangible management results.

Assessment

During the assessment phase, teams may need assistance with technical tasks such as analyzing data. They also will want to generate interest in local Action Teams, and will want to understand and share concerns about management priorities.

Targeted communication to the groups will urge them to:

- **Decisionmakers:** Contribute funds and staff resources to conduct work. Receive and comment on results, or provide assistance with analysis.
- **Stakeholders:** Provide information about the watershed area. Work with respective groups to identify options for solving problems. Review draft documents.
- **General Public:** Understand key issues addressed in the assessment. Participate in open meetings and activities (e.g., forums or opinion surveys). Encourage decisionmakers to act responsibly on issues involving watershed protection.

Plan Development

By the time the team is in the third year, they should have active and committed participation by a wide range of stakeholders. During this time, communication is focused on encouraging participation in plan development, attending meetings and commenting on drafts, among a range of activities.

Targeted communication will look for the following results:

- **Decisionmakers:** Setting deadlines and presiding over key meetings regarding selection of objectives and actions. Interacting with the Executive Watershed Council. Making final choices in strategy, actions and implementation. Identifying potential sources of funds and legal/administrative reforms required for implementation. Sponsoring early implementation actions when they are identified.
- **Stakeholders:** Clarifying and refining positions. Reviewing drafts and participating in negotiations and debates on issue chapters. Providing supplementary information. Participating in demonstration projects and early actions.
- **General Public:** Participating in forums where draft elements of plans are presented. Advising stakeholders and decisionmakers on preferences. Reflecting and giving feedback on implications of proposed actions for their local area.

Implementation

During implementation, communication will be focused on encouraging and supporting identified management actions.

Targeted communication will for the following responses:

- **Decisionmakers:** Commitment to implement plan elements that are under their direct authority. Proposing legal or administrative reforms. Preparing proposals for funding.
- **Stakeholders:** Identifying needed activities and making commitments to carry them out. Lobbying for support of implementation measures.
- **General Public:** Supporting general referenda at state or local level to provide resources. Volunteering to carry out actions at local level.

Evaluation

The evaluative process works best with broad input from watershed partners. The communication and outreach strategy will encourage this participation and disseminate results through public forums held by Watershed Teams.

Targeted communication will encourage these actions:

- Decisionmakers: Conduct progress monitoring and make results available in timely fashion. Participate in progress review sessions and identify any adaptations required to make implementation successful.
- Stakeholders: Actively participate in plan oversight activities. Move information and group perspectives forward. Develop suggested adaptations.
- General Public: Pay attention to plan progress and results. Adopt measures aimed at individuals and households. Provide guidance to local organizations regarding pace and direction of progress. Identify new concerns.

8.4 Communication Strategies for Watershed Teams

Communicating with Decisionmakers

Watershed Teams include representatives from agencies and organizations with active programs in the watershed area. The team meeting should provide a forum for networking among these organizations, promoting discussions on existing program funding and anticipated needs. Participating groups will be encouraged to leverage and share common resources, and to work together to obtain increased support.

Watershed coordinators also have access to high-level agency decisionmakers on the Executive Watershed Council. Watershed Action Plans prepared by the team and coordinator will need to be approved and funded by the Executive Watershed Council. Plans presented to the Executive Watershed Council should be short and specific. They should highlight the partnerships built through the team, the linkages between programs and the resources leveraged through collaboration. The team should set clear priorities and should clearly describe the actions needed from the council.

Inter-agency Communication

Watershed Teams should support and use all available mechanisms for inter-agency communication including new coordination mechanisms established by the Executive Watershed Council. Teams should use the expertise and skills of participating agencies and organizations, and should coordinate planning and implementation with these partners. Credit for success is shared by all participants. Teams should also maintain contact with state legislators from their area, informing them about the Watershed Approach, inviting them to events and to share in the team success when appropriate.

Teams also need to communicate regularly with municipal staff and officials, striving to link watershed programs with local priorities.

Communication with Stakeholders

Watershed Teams should involve all key stakeholders in the area. The coordinator should think about how the watershed initiative will affect various interest groups, either positively or negatively. Think about why an individual or group should be interested and involved. What is their interest in the watershed and how will these interests be served?

Once the stakeholders have been identified, mechanisms should be put in place to keep all interested people informed about the Watershed Approach. These mechanisms may include using the Watershed Approach WWW site to publicize the time and place for future meetings and events occurring in the watershed, or to provide information on priority issues and watershed projects.

Communication with the Public

The Watershed Team provides the basic link between the Watershed Approach and the watershed community. Efforts should be made to inform the public about the watershed, its resources and issues by producing newsletters, brochures and varied publications. Team accomplishments should be publicized — local papers will often publish notices and articles about activities in the local area. Letters to the editor of local papers also provide a forum for thanking volunteers and participants in watershed events. The thank-yous please volunteers and also increase the visibility of the Watershed Team.

The public should be invited to Watershed Team meetings through public notices and free public service announcements. The local paper may agree to list team meetings with other local events.

8.5 Communication Strategies for the Executive Watershed Council

The Executive Watershed Council is responsible for implementation of the Watershed Approach. With support from the Partners in Resource Protection and individual Watershed Teams, the Executive Watershed Council provides leadership for the institutional adjustments called for by the Watershed Approach. Clear, consistent communication with state decisionmakers, legislators and the public will be needed throughout the implementation process.

Communication with Decisionmakers

Members of the Executive Watershed Council will identify decisionmakers in resource agencies, the business community and the legislature who are likely to be receptive to the Watershed Approach. Soon after the Executive Watershed Council is formed, members will contact these individuals and brief them on the basic components of the Watershed Approach, requesting responses and feedback. During the briefing, linkages between the Watershed Approach and other programs will be explained. Copies of the Watershed Approach, the Rivers Council legislation, and other pertinent information (e.g. the State of the State's Waters Report, Unified Watershed Assessment and Restoration Priorities in Rhode Island) will be provided. Following these briefings, a regular flow of information between the Executive Watershed Council and these individuals will be maintained.

Communication within Government

Members of the Executive Watershed Council and the Partners in Resource Protection will support increased electronic and traditional communication within DEM divisions and among other departments of state government. Better communication is essential to truly integrated solutions to environmental problems. It will allow coordination of regulatory activities such as development of standards, permitting, monitoring, enforcement, and non-regulatory activities such as planning, technical assistance and

outreach. It also enhances sharing of information and data, as well as expertise and management tools.

Additional steps that should be considered to improve agency coordination and communication include:

- Provide training in risk communication to agency staff. This training will enhance the public responsiveness of resource management agencies during times of environmental crisis.
- Develop a system of standard watershed indicators to support rational assessments of watershed resources and ecosystem health. These indicators will then be used during the evaluative phase of the Watershed Approach.
- Conduct an integrated review of the development of programs and regulations for consistency with state guide plans and federal guidance.
- Promote effective partnerships with local governments. Decisions made by local governments affect how land will be used throughout the state. Partnerships with local government will encourage the adoption of best management practices for development, and will enhance coordination of permitting among agencies and other levels of government.

Communication with Watershed Teams

Watershed Teams should be encouraged to participate in the development of such documents as agency priorities and work plans, and lists of impaired waters, among others.

Communication with the Public

The Executive Watershed Council will provide opportunities for public participation in the process. They will also support public information initiatives. In particular, the Executive Watershed Council will promote education targeted at resource users such as sewage discharge and pre-treatment permit holders, recreational users, groundwater users and developers. These efforts should result in improved understanding of biological, chemical and physical interactions in watershed ecosystems.

Key segments of the public should also be targeted with communications designed to inform about monitoring, pollutant loadings and impacts of other environmental stressors.

Chapter 9 - Conclusion

This document reflects the time and hard work of many people. Creating the document is the easy part of the process. During the next year, the group will focus on implementing the Watershed Approach and testing its concepts in the South County watershed region.

Rhode Island's Watershed Approach is a work in progress. It is designed to be flexible and adaptable, so it can be applied to the wide range of watershed interests in the state. The Watershed Approach committee encourages people to read and think about the framework, and reflect on how it will or will not work. Please share your comments and concerns with us, so the framework can be strengthened as we move forward.

Comments can be forwarded to:

Watershed Approach
RI DEM Office of Water Resources
235 Promenade Street
Providence, RI 02908

Appendix 1 – Ten Elements of the Watershed Action Plan

Background Information About the Watershed and Municipal Planning

Most of Rhode Island's watersheds have already been studied, and the information gathered will be summarized in the rapid assessment of the watershed region. A more detailed understanding of the area may be needed for the Watershed Action Plan. Good sources of information include:

- Watershed management plans
- Pollution source identification and control plans
- Public lands management plans
- Regional policy documents in the state guide plan
- Coastal management plans for receiving waters
- Connecticut or Massachusetts documents relevant to the watershed
- Local comprehensive plans
- Local zoning ordinances

1. Summary of the Process Used During Plan Preparation

This section should describe the actions taken to involve all interested stakeholders in the watershed management planning process. It describes the membership of the Watershed Team, and how interested parties were identified.

Include in this section a listing of stakeholders involved in the drafting of the document.

Explain what steps have been or will be taken to identify and engage other important, but less organized, active stakeholder groups during the implementation process.

Potential stakeholders could include but are not limited to:

- Technical representatives of state and federal resource and planning agencies that are actively working in the watershed
- Technical representatives from environmental organizations with projects and initiatives in the watershed
- Representatives from local government (town councils, planning boards, conservation commissions)
- Business representatives from the community.
- Utility company representatives (i.e. water and energy suppliers)
- Representatives from grassroots monitoring and advocacy groups active in the watershed area
- Representatives from the general public
- Holders of air or water discharge permits

2. Roles and Responsibilities

The Watershed Team is expected to identify the lead groups who will provide information and technical support during implementation of the Watershed Action Plan.

The identification of leaders in the watershed region will be an important first task for the Watershed Team. These leaders will initiate the planning process in the watershed. In some regions, each watershed will have a clear lead group, but in many regions there will be watersheds that do not have a clear lead organization. Development of Watershed Action Plans for these watersheds may be postponed until later phases of the approach.

Once the initial watershed planning process has been completed, the roles and responsibilities for implementing watershed-wide activities will be clarified and expanded. This section provides the current description of these roles as they affect the implementation of the plan.

3. Watershed Characterization

The watershed characterization may include the following:

- Maps showing watershed hydrology, land use, soil type, etc.
- Summary of existing and planned watershed uses including recreational uses, public access sites, industrial sites, sites identified for industrial development, drinking water resources (private and public), etc.
- Summary of surface water quality and quantity
- Characterization of groundwater resource quantity and quality
- Inventory and description of the status of other natural resources (forestry, fisheries, wetlands, etc.)
- Habitat inventory and summary of historical trends
- Description of land uses, historical and present
- Inventory of point and nonpoint sources of pollution including information on the status or results of Total Maximum Daily Load (TMDL) evaluations.
- Inventory of all permit holders from DEM and EPA
- Location and status of hazardous waste sites, generators, storage facilities, disposal firms, transfer stations and sanitary landfills (public and private), both active and inactive
- Description of monitoring activities by DEM, EPA, USGS, university and/or volunteer groups
- Known stressors and pollutant sources affecting natural resources
- Local, state and federal activities and property inventory
- Population projections and past trends
- Zoning and other land use controls

Much of the information in this section will be collected by the Watershed Team during the preparation of the rapid assessment of the watershed region. Additional information can be obtained from local, federal and state sources such as the Rhode Island Geographic Information System, municipal governments within a watershed, DEM, DOH, Statewide Planning, the U.S. Geological Survey and the EPA.

When complete, this section can be developed into an informational pamphlet or brochure, providing an important opportunity for communicating with people living and working in the watershed. The pamphlet will give readers key ecological information, describing in layman's terms how their watershed system functions as well as identifying economic and social factors that may affect the future quality of life in the watershed area.

4. Existing Management Efforts

In most watersheds there are already projects and programs underway which are making positive contributions to watershed conservation and protection. Watershed Teams will identify these programs, highlighting the strengths of existing local, private, state and federal programs, as well as identifying areas where adaptations or innovations are required to address needs arising from analyses of watershed issues.

Preparing this section has significant value. It enables existing groups and agencies to reflect upon the extent to which they already influence and are charged with carrying out activities beneficial to watershed management.

5. Permitting

This section of the plan describes regulatory permitting cycles and how they affect the watershed. It should also include proposals for permit coordination within the watershed management cycle. If possible, permits reviewed on a cyclical basis, such as RI Pollution Discharge Elimination System permits (i.e., sewage treatment plant permits), should be scheduled to expire and be re-evaluated at the same time. This allows the permit writers to take full advantage of coordinated planning and monitoring information, and consider the cumulative impacts of all the proposed permitted activities.

Watershed plans should identify waters that have been adversely affected by a cumulative impact, as well as waters that are maintaining reasonable biological and ecological health. In addition to assessments, it is important that the plans include strategies that will protect against an additional adverse cumulative impact to waters, as well as reverse existing trends.

6. Goals and Objectives for the Watershed

Long-term goals and intermediate objectives (or expected outcomes/results) for protecting and restoring the watershed are presented in this section as a result of work in the early phase of preparing the Watershed Action Plan. The local watershed group or Watershed Team should identify goal and policy statements already existing in planning documents as a point of departure for their goal-setting exercises.

Long-term goals should be established that protect or restore the health of the watershed and provide for sustainable growth in areas where development is designated or desired. Examples of long-term goals include:

- Restoring a certain number of river miles to fishable and swimmable conditions, and then maintaining them
- Assuring a sustainable balance of water use and recharge in aquifers
- Conserving selected critical habitats and landscapes

Long-term goals should reflect the expected economic, social and environmental benefits, which will be enjoyed if the Watershed Action Plan is successfully implemented.

Intermediate objectives should specify a shorter-term outcome that can be reached with diligent effort. These objectives contribute to the long-term goals of:

- Demonstrating improved decisionmaking methods on water use or stormwater drainage in a selected small watershed.
- Restoration of fish habitat and passages by constructing fish ladders or removing dams

The goals and objectives should be prioritized to help simplify the development of work plans for achieving the goals and objectives.

7. Findings of Fact, Management Objectives and Proposed Actions for Key Issues

The main body of the Watershed Action Plan will consist of sections addressing specific issues.

The plan does not have to be comprehensive from the outset in order to make a significant contribution to improving watershed management. Watershed Action Plans should focus attention on key issues and opportunities for protection, management and restoration of natural resources, and include planning for sustainable growth. Each issue section must acknowledge the contribution of existing initiatives and the usually limited available resources for planning.

Issue-oriented sections take advantage of problem-solving needs, and the urgency and sense of priority that surround key concerns. This can lead to strong participation, effective debate and broad-based decisionmaking. Together these actions lead to more effective implementation.

The preparation of each issue section is a collaborative, stakeholder-based effort led by the local watershed group with assistance from the Watershed Team. It is best to employ and document a range of methods to reach and continuously engage watershed stakeholders and government agencies.

A typical issue section will contain characterization of resources, findings for management, goals for the desired future condition of the watershed with respect to the problem(s), a program of actions sufficient to achieve the goals and the indicators to be employed to track progress.

The following are appropriate for an issue section:

- Identification and diagnosis of the watershed use problem

This section provides a greater level of detail about the nature of the problem, the degree of confidence in information, and predictions of what may happen without action.

- Review of policies, plans and experiences to date

This describes the level of awareness and initial responses taken by different levels of government and citizens to confront the problem, indicates any early success and identifies factors to consider in order to fully address it.

- Specific objectives, expected results and benefits from the proposed program of action

This section puts forward the desired condition or situation five or 10 years into the future with respect to the problem and what specific results need to be achieved to reach that desired condition.

- Options for action considered by the Watershed Team, and their implications (cost, feasibility, and effectiveness)

This traces the advantages and disadvantages of various options considered by the Watershed Team, and provides the justification for the planned course of action.

- Recommended program of activities

A full list of proposed actions is itemized, along with annotations on their relative importance and priority in enabling the Watershed Approach to attain the specific objectives set out for the issue. Each action should have the lead implementers identified whenever possible.

- Funding requirements and sources

This section identifies the major financial, personnel, information and infrastructure costs associated with carrying out planned actions, shows links with current programs of expenditures, specifies areas where new funds are needed, and suggests leveraging of resources of existing programs, organizations and institutions at municipal, state and federal levels.

- Feasibility and risk factors for implementation
- Principal potential obstacles to successful execution of the planned actions

Identifies how the Watershed Action Plan is designed to overcome any obstacles expected

- Agreements and commitments by responsible parties toward implementing the actions

The Watershed Team should request endorsements and specific commitments by lead implementing agencies or groups and include them in the document.

- Monitoring and evaluation criteria and procedures to be incorporated in the monitoring plan

This section identifies how progress will be measured for this specific issue, and is cross-referenced with the watershed monitoring plan.

8. Outreach / Communication and Education Strategy

Public and government agency involvement is at the core of successful implementation of a Watershed Action Plan. This in turn requires a sustained effort to inform, educate, engage and be accountable to the constituency in the watershed being managed. The Watershed Team will conduct this effort, addressing:

- Communication with key decisionmakers within the watershed and at the state and federal levels
- Communication among involved local, state and federal agencies
- Continuing involvement of key stakeholders in planning and implementation
- Education, outreach and communication with the general public

9. Monitoring and Evaluation Plan

This section describes both current monitoring in the watershed and new monitoring projects designed as part of the Watershed Approach. Existing monitoring may include fixed station ambient monitoring, special studies, volunteer monitoring supported by local watershed groups or Action Teams, among other efforts.

New programs often include monitoring designed to understand critical watershed issues, monitoring needed for program evaluation and the measurement of watershed health indicators. New monitoring should be specifically focused toward information needed to move the watershed through the planning process. Data on carefully chosen indicators should be collected regularly so that progress toward achieving the Watershed Action Plan's goals can be properly evaluated.

The thoroughness of the monitoring plan should strike a balance between the need to document results of conservation actions (information useful for building public support and attracting support) and the extra work required to collect and report additional data.

The Watershed Team should be sure that data obtained through strategic monitoring activities is available to and used by local, state and federal regulatory authorities that issue permits within the watershed.

10. Framework for Implementation

The Watershed Action Plan may encompass an implementation period of five, 10 or even more years. The framework should:

- List the principal actions to be carried out over the life of the plan
- Describe anticipated social, economic and environmental benefits
- Define a management schedule that includes deadlines and performance measures for all activities
- List ways to secure organizational staff and volunteer commitment
- Prepare a funding plan which identifies contributions from current programs and new funding requirements
- Provide an overall schedule for implementation
- Specify how to apply monitoring and evaluating results
- Specify the process for modifying the plan and activities

